

The claimed invention:

1. A virtual control system for controlling surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

5 a virtual control device including an image of a control device located on a surface and a sensor for interrogating interaction of an object with the image on the surface, the virtual control device delivering an interaction signal indicative of the interaction of the object with the image; and

a system controller connected to receive the interaction signal from the virtual control device and to deliver a control signal to the surgical equipment in response to the interaction signal to control the surgical equipment in response to the interaction of the object with the image.

2. A virtual control system as defined in claim 1, wherein:
the object is one of a finger or a foot of the surgeon;
the image is one of a projected light image or a printed image;
the image includes at least one contact control area; and
5 the interaction with the image is contact of the object with the contact control area.

3. A virtual control system as defined in claim 2, wherein:
the sensor optically interrogates the interaction of the object with the image.

4. A virtual control system as defined in claim 1, wherein:
the object is a finger of the surgeon;
the image of the control device is an image for a control panel of the surgical equipment;
5 the image includes a contact control area which represents a control function of the surgical equipment;
the interaction with the image is contact of the surgeon's finger with the contact control area; and
the image of the control panel is located within a sterile field of the
10 surgical procedure.

5. A virtual control system as defined in claim 4, wherein:
the sensor optically interrogates the interaction of the object with the contact control area.
6. A virtual control system as defined in claim 5, wherein:
the image of the control panel includes a multiplicity of different contact control areas, each contact control area representing a different control function of the surgical equipment; and
5 the sensor optically interrogates the interaction of the object with each of the different contact control areas.
7. A virtual control system as defined in claim 6, wherein:
the virtual control device projects the image of the control panel on surgical drapes adjacent to a surgical site and within the sterile field.
8. A virtual control system as defined in claim 1, wherein:
the object is a foot of the surgeon;
the image is one of a projected light image or a printed image located on a floor of the operating room beneath an operating table;
5 the image includes a contact control area which represents a control function of the surgical equipment; and
the interaction with the image is contact of the surgeon's foot with the contact control area.
9. A virtual control system as defined in claim 8, wherein:
the sensor optically interrogates the interaction of the object with the image.
10. A virtual control system as defined in claim 9, wherein:
the contact control area of the image represents an activation function of the surgical equipment.
11. A virtual control system as defined in claim 1, wherein:
the object is a foot of the surgeon;
the virtual control device further includes an image projector which projects a light image on a floor of the operating room beneath an operating table;

- 5 the image includes a contact control area which represents a control
function of the surgical equipment;
- the interaction with the image is contact of the surgeon's foot with the
contact control area; and further comprising:
- a position tag to be attached to the surgeon's foot; and wherein:
- 10 the sensor optically interrogates the interaction of the surgeon's foot
with the contact control area and also optically interrogates the position of the
position tag.
12. A virtual control system as defined in claim 11, wherein:
- the virtual control device responds to the interrogated position of the
position tag to control the image projector to project the image of the contact
control area on the floor at a position relative to the interrogated position of the
- 5 position tag.
13. A virtual control system as defined in claim 12, wherein:
- the position at which the contact control area is projected on the floor
relative to the position tag is laterally adjacent to the surgeon's foot.
14. A virtual control system as defined in claim 12, wherein:
- the system controller is connected to the virtual control device to
obtain information describing the position of the projected image of the contact
control area relative to the interrogated position of the position tag; and further
- 5 comprising:
- a system display comprising a projector connected to the system
controller and operative to create a system display image presenting the
information describing the relative position of the projected image of the contact
control area relative to the interrogated position of the position tag.
15. A virtual control system as defined in claim 12, wherein:
- the system controller is connected to the virtual control device to
obtain information describing the relative position of the projected image of the
contact control area relative to the interrogated position of the position tag; and
- 5 further comprising:
- a face shield to be worn by the surgeon; and

a heads up display comprising a heads up projector connected to the system controller and interactive with the face shield to create a heads up display image presenting the information describing the relative position of the projected image of the contact control area relative to the interrogated position of the position tag on the face shield.

16. A virtual control system as defined in claim 11, further comprising:
a proximity indicator connected to the system controller and responsive to the interrogated position of the position tag relative to the contact control area to signal a degree of separation between the position tag and the contact control area.

17. A virtual control system as defined in claim 1, wherein:
the image includes a portion defining a contact control area with which interaction is made to control functionality of the surgical equipment; and
the virtual control device comprises an optical sensor which responds to reflected light from the object interacting with the contact control area to supply a signal indicative of the interaction of the object with the contact control area.

18. A virtual control system as defined in claim 17, wherein:
the signal supplied by the optical sensor relates to a degree of interaction of the object with the contact control area.

19. A virtual control system as defined in claim 18, wherein:
the signal supplied by the optical sensor relates to the degree of separation of the object from the contact control area.

20. A virtual control system as defined in claim 17, wherein:
the virtual control device further comprises a light source which projects incident light onto the contact control area; and
the reflected light is reflected from the incident light by the object interacting with the contact control area.

21. A virtual control system as defined in claim 20, wherein:
the incident light projected from the light source is a pulsed beam of incident light which is scanned through a range of scanning angles over the surface upon which the image is projected;

5 the reflected light from the object interacting with the contact control area is also pulsed; and

 the virtual control device further comprises a device controller connected to the light source and sensor and which is operative to determine interaction of the object with the contact control area based on relative timing
10 information between corresponding pulses of the incident light and the reflected light and the scanning angle of the incident light which causes the reflected light.

22. A virtual control system as defined in claim 20, wherein:

 the virtual control device further comprises an image projector to project a beam of image light to create the image and the contact control area of the image.

23. A virtual control system as defined in claim 22, wherein:

 the virtual control device further comprises a device controller connected to the image projector to control the image projector to project a beam of image light through a range of projection angles over the surface to create the
5 image and the contact control area of the image;

 the incident light projected from the light source is a pulsed beam of incident light which is scanned through a range of scanning angles over the surface upon which the image is projected;

 the reflected light from the object interacting with the contact control
10 area is also pulsed;

 the device controller is connected to the light source to control the scanning angles of the pulsed beam of incident light in correlation with the projection angles of the beam of image light; and

 the device controller interrogates interaction of the object with the
15 contact control area based on the correlated relationship between scanning angles of the incident light and the projection angles of the image light and the relative timing between corresponding pulses of the incident light and the reflected light.

24. A virtual control system as defined in claim 20, wherein:

 the virtual control device further comprises an image projector to project image light to create the image and a multiplicity of different contact control

- areas within the image, each contact control area representing a different control
5 function of the surgical equipment;
the image projector projects the image light in a correlated
relationship with the incident light projected by the light source; and
the virtual control device further comprises a device controller
connected to the light source, the image projector and the sensor to determine
10 interaction of the object with the contact control area based on a correlation
between the incident light and the reflected light and a correlation between the
image light and the incident light.
25. A virtual control system as defined in claim 1, wherein:
the system controller is connected to the surgical equipment to obtain
information from the surgical equipment concerning the status, control and
functionality of the surgical equipment; and further comprising:
5 a system display comprising a system projector connected to the
system controller and operative to create a system display image for displaying the
information describing the control, status and functionality of the surgical
equipment.
26. A virtual control system as defined in claim 25, further comprising:
a face shield to be worn by the surgeon; and
a heads up display comprising a heads up projector connected to the
system controller and interactive with the face shield to create a heads up display
5 image on the face shield which presents the information describing the control,
status and functionality of the surgical equipment.
27. A virtual control system as defined in claim 25 for use with patient
monitoring equipment attached to the patient during the surgical procedure by
which to determine information describing a condition of the patient, wherein:
the system controller is connected to the patient monitoring
5 equipment to obtain the information from the patient monitoring equipment
describing the condition of the patient; and
the system display image created by the projector further displays the
information describing the condition of the patient.

28. A virtual control system as defined in claim 27, further comprising:
a face shield to be worn by the surgeon; and
a heads up display comprising a heads up projector connected to the
system controller and interactive with the face shield to create a heads up display
5 image on the face shield which presents the information describing the condition of
the patient.
29. A virtual control system as defined in claim 28, wherein:
virtual control device and the system controller are connected by a
communication link including a wireless communication path; and
the system controller and the surgical equipment are connected by a
5 communication link including a wireless communication path.
30. A virtual control system as defined in claim 1, wherein:
the system controller is connected to the surgical equipment to obtain
information from the surgical equipment concerning the status, control and
functionality of the surgical equipment; and further comprising:
5 a face shield to be worn by the surgeon; and
a heads up display comprising a heads up projector connected to the
system controller and interactive with the face shield to create a heads up display
image on the face shield which presents the information describing the control,
status and functionality of the surgical equipment.
31. A virtual control system as defined in claim 30 for use with patient
monitoring equipment attached to the patient during the surgical procedure by
which to determine information describing a condition of the patient, wherein:
the system controller is connected to the patient monitoring
5 equipment to obtain the information from the patient monitoring equipment
describing the condition of the patient; and
the heads up display image created by the heads up projector further
displays the information describing the condition of the patient.
32. A virtual control system as defined in claim 31, wherein:
virtual control device and the system controller are connected by a
communication link including a wireless communication path;

the system controller and the surgical equipment are connected by a
5 communication link including a wireless communication path; and

the system controller and the patient monitoring equipment are
connected by a communication link including a wireless communication path.

33. A virtual control system as defined in claim 1 for use with patient
monitoring equipment attached to the patient during the surgical procedure by
which to determine information describing a condition of the patient, wherein:

the system controller is connected to the patient monitoring
5 equipment to obtain the information from the patient monitoring equipment
describing the condition of the patient; and further comprising:

a face shield to be worn by the surgeon; and

a heads up display comprising a heads up projector connected to the
system controller and interactive with the face shield to create a heads up display
10 image on the face shield which presents the information describing the condition of
the patient.

34. A virtual control system as defined in claim 1, further comprising:

an identification tag associated with at least one of either the surgeon
or the patient, the identification tag containing information identifying at least one of
the surgeon, the patient or the surgical procedure to be performed on the patient;

5 and

a scanner connected to the system controller and located within the
operating room, the scanner reading the information from the identification tag; and
wherein:

the system controller responds to the information read from the
10 identification tag to establish an initial operative setting of the surgical equipment.

35. A virtual control system as defined in claim 34, wherein:

the information from the identification tag describes the initial
operative setting of the surgical equipment; and

the system controller responds to the initial operative setting
5 information read from the identification tag to establish the initial operative setting
of the surgical equipment.

36. A virtual control system as defined in claim 34, wherein:
the identification tag contains information which identifies the surgeon;
the system controller includes information stored in memory which
5 correlates the surgeon with the surgeon's preferred initial operative setting of the surgical equipment; and
the system controller establishes the initial operative setting of the surgical equipment in response to the information which identifies the surgeon and the information stored in memory which correlates the surgeon with the surgeon's
10 preferred initial operative setting.
37. A virtual control system as defined in claim 36, further comprising:
the identification tag also contains information which identifies the surgical procedure to be performed on the patient;
the system controller also includes information stored in memory
5 which correlates the preferred initial operative settings of the surgical equipment with the particular surgical procedure to be performed on the patient; and
the system controller establishes the initial operative settings of the surgical equipment from the information stored in memory in response to the information which identifies the surgeon and the surgical procedure.
38. A virtual control system as defined in claim 34, wherein:
the identification tag is associated with the surgeon by the surgeon wearing the identification tag.
39. A virtual control system as defined in claim 38, wherein:
the identification tag is worn by the surgeon on at least one of a surgical gown, a surgical glove or a foot cover.
40. A virtual control system as defined in claim 34, wherein:
the identification tag is associated with the patient by attachment to surgical drapes which cover the patient during the procedure.
41. A virtual control system as defined in claim 40, wherein:
the identification tag is associated with the patient by attachment to an exposed portion of the patient's body during the surgical procedure.

42. A virtual control system as defined in claim 34, wherein:
the identification tag contains information which identifies the surgeon
and the patient;
the system controller includes information stored in memory which
5 correlates the surgeon with the patient; and
the system controller permits operation of the surgical equipment only
in response to the information which identifies the surgeon correlating with the
patient.
43. A virtual control system as defined in claim 34, wherein:
the identification tag contains information which identifies the
surgeon;
the system controller permits operation of the surgical equipment only
5 in response to the information which identifies the surgeon; and further comprising:
an input device connected to the system controller by which to supply
information to the system controller; and wherein:
the system controller permits operation of the surgical equipment in
response to override information supplied to the system controller through the input
device.
44. A virtual control system as defined in claim 43, wherein:
the override information is a password.
45. A virtual control system as defined in claim 34, wherein:
the identification tag contains information which identifies the
surgeon;
the system controller includes information stored in memory which
5 correlates the surgeon with the surgeon's preferred initial operative setting of the
surgical equipment; and further comprising:
a system display comprising a projector connected to the system
controller and operative to create a display image presenting the information
describing the surgeon's preferred initial operative setting of the surgical
10 equipment.
46. A virtual control system as defined in claim 45, further comprising:

a communication link including a wireless communication path which connects each of the system controller to the surgical equipment, the virtual control device to the system controller, the scanner to the system controller, and the projector to the system controller.

47. A virtual control system as defined in claim 1, further comprising:
an identification tag attached to the hand of the surgeon, the identification tag containing information identifying the surgeon;

a scanner connected to the system controller and located within the operating room, the scanner reading the information from the identification tag; and wherein:

the object interacting with the image is the hand of the surgeon;
the system controller responds to the information read from the identification tag to permit control of the surgical equipment only in response to the interaction of the hand of the surgeon upon which the tag is attached with the image.

48. A virtual control system as defined in claim 1, further comprising:
a voice responsive input device connected to the system controller, the voice responsive input device responsive to voice commands to deliver control signals to the system controller; and wherein:

the system controller responds to the control signals from the voice responsive input device to control one of either the surgical equipment or the virtual control device.

49. A virtual control system as defined in claim 1, wherein:

the virtual control device further includes a projector which projects a light image on a surface, the light image includes a contact control area which represents a control function of the surgical equipment;

the system controller is connected to the surgical equipment to obtain information from the surgical equipment concerning the status, control and functionality of the surgical equipment; and

the projector is connected to the system controller and operative to create a portion of the light image separate from the contract control area for

10 displaying the information describing the control, status and functionality of the surgical equipment.

50. A virtual control system as defined in claim 1 for use with patient monitoring equipment attached to the patient during the surgical procedure by which to determine information describing a condition of the patient, wherein:

5 the virtual control device further includes a projector which projects a light image on a surface, the light image includes a contact control area which represents a control function of the surgical equipment;

the system controller is connected to the patient monitoring equipment to obtain information from the patient monitoring equipment describing the condition of the patient; and

10 the projector is connected to the system controller and operative to create a portion of the light image separate from the contract control area for displaying the information describing the condition of the patient.

51. A virtual control system as defined in claim 50, wherein:

the system controller is connected to the surgical equipment to obtain information from the surgical equipment concerning the status, control and functionality of the surgical equipment; and

5 the projector is connected to the system controller and operative to create first and second portions of the light image separate from the contract control area, the first portion of the light image for displaying the information describing the condition of the patient and the second portion of the light image for displaying information describing the control, status and functionality of the surgical equipment.

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52. A virtual control system for controlling surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

5 an identification tag attached to the hand of the surgeon, the identification tag containing information identifying the surgeon;

a virtual control device including an image of a control device and a sensor for interrogating interaction of a hand of the surgeon with the image and for

reading information from the tag attached to the hand of the surgeon, the virtual control device delivering an interaction signal indicative of the interaction of the hand of the surgeon with the image and information obtained from the tag; and
10 a system controller responsive to the interaction signal and the information read from the tag from the virtual control device to deliver a control signal to the surgical equipment to control the surgical equipment only in response to the interaction with the image of the hand of the surgeon to which is attached
15 the tag containing information which identifies the surgeon.

53. A system for use with surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

a system controller connected to the surgical equipment to obtain information from the surgical equipment concerning the status, control and
5 functionality of the surgical equipment; and

a display comprising a projector connected to the system controller and operative to create a display image at a location within the operating room removed from the surgical equipment, the display image displaying the information describing the control, status and functionality of the surgical equipment.

54. A system as defined in claim 53, further comprising:

a face shield to be worn by the surgeon; and wherein:
the display image is created by the projector on the face shield.

55. A system as defined in claim 53 for use with patient monitoring equipment attached to the patient during the surgical procedure by which to determine information describing a condition of the patient, wherein:

the system controller is connected to the patient monitoring
5 equipment to obtain the information from the patient monitoring equipment describing the condition of the patient; and

the display image created by the projector further displays the information describing the condition of the patient.

56. A system as defined in claim 55, further comprising:

a face shield to be worn by the surgeon; and wherein:
the display image is created by the projector on the face shield.

57. A system as defined in claim 53, further comprising:
an identification tag associated with at least one of either the surgeon or the patient, the identification tag containing information identifying at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;
5 and
a scanner connected to the system controller and located within the operating room, the scanner reading the information from the identification tag; and
wherein:
the system controller responds to the information read from the
10 identification tag to cause the projector to display information related to at least some of the information read from the identification tag.
58. A system as defined in claim 57, wherein:
the information displayed which is related to at least some of the information read from the identification tag describes an initial operative setting of surgical equipment to be used in the procedure.
59. A system as defined in claim 57, wherein:
information displayed which is related to at least some of the information read from the identification tag describes the procedure to be performed on the patient.
60. A system as defined in claim 57, wherein:
information displayed which is related to at least some of the information read from the identification tag identifies the patient upon which the procedure is to be performed.
61. A system as defined in claim 57, wherein:
information displayed which is related to at least some of the information read from the identification tag identifies the surgeon who is to perform the procedure.
62. A system as defined in claim 53, further comprising:
a voice responsive input device connected to the system controller, the voice responsive input device responsive to voice commands to deliver control signals to the system controller; and wherein:

5 the system controller responds to the control signals from the voice responsive input device to control the projector to control the information displayed in the display image.

63. A system for use with patient monitoring equipment attached to the patient during the surgical procedure by which to determine information describing a condition of the patient, comprising:

5 a system controller connected to the patient monitoring equipment to obtain the information from the patient monitoring equipment describing the condition of the patient; and

 a display comprising a projector connected to the system controller and operative to create a display image at a location within the operating room removed from the patient monitoring equipment, the display image displaying the
10 information describing the condition of the patient obtained from the patient monitoring equipment.

64. A system as defined in claim 63, further comprising:

 a face shield to be worn by the surgeon; and wherein:
 the display image is created by the projector on the face shield.

65. A system as defined in claim 63, further comprising:

 a voice responsive input device connected to the system controller, the voice responsive input device responsive to voice commands to deliver control signals to the system controller; and wherein:

5 the system controller responds to the control signals from the voice responsive input device to control the projector to control the information displayed in the display image.

66. A method for controlling surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

 creating an image of a control device for the surgical equipment;
 interrogating interaction of a part of the surgeon with the image; and
5 controlling the surgical equipment in response to the interaction of the object with the image.

67. A method as defined in claim 66, further comprising:

creating at least one contact control area of the image; and
interrogating interaction of one of a finger or a foot of the surgeon
with the image to control the surgical equipment.

68. A method as defined in claim 67, further comprising:
optically interrogating the interaction of the surgeon's finger or foot
with the image.

69. A method as defined in claim 66, further comprising:
projecting an optical image of a control panel for the surgical
equipment;

including within the projected image of the control panel a contact
5 control area which represents a control function of the surgical equipment;
optically interrogating contact of a finger of the surgeon with the
contact control area of the control panel image to control surgical equipment.

70. A method as defined in claim 69, further comprising:
projecting the image of the control panel within a sterile field of the
surgical procedure.

71. A method as defined in claim 69, further comprising:
projecting the image of the control panel on surgical drapes adjacent
to a surgical site.

72. A method as defined in claim 69, further comprising:
including in the projected optical image of the control panel a
multiplicity of different contact control areas, each contact control area
representing a different control function of the surgical equipment; and
5 optically interrogating the interaction of the surgeon's finger with each
of the different contact control areas.

73. A method as defined in claim 66, further comprising:
using a printed image of the control device to create the image of the
control device.

74. A method as defined in claim 66, further comprising:
projecting an optical image of a foot switch of the surgical equipment
on a floor of the operating room;

- including within the projected image of the foot switch a contact control area which represents an activation control function of the surgical equipment;
- 5 optically interrogating contact of a foot of the surgeon with the contact control area of the foot switch image to activate and deactivate the surgical equipment.
75. A method as defined in claim 74, further comprising:
attaching a position tag to the surgeon's foot; and
optically interrogating the position of the position tag relative to the contact control area.
76. A method as defined in claim 75, further comprising:
projecting the foot switch image with the contact control area on the floor at a position relative to the interrogated position of the position tag.
77. A method as defined in claim 76, further comprising:
projecting the contact control area on the floor laterally adjacent to the position tag.
78. A method as defined in claim 76, further comprising:
displaying information describing the position of the projected image of the contact control area relative to the interrogated position of the position tag.
79. A method as defined in claim 76, further comprising:
covering the surgeon's face with a face shield during the surgical procedure;
projecting on the face shield information describing the position of the contact control area on the floor relative to the interrogated position of the position tag.
- 5 80. A method as defined in claim 75, further comprising:
indicating proximity of the position tag relative to the contact control area.
81. A method as defined in claim 66, further comprising:
creating at least one contact control area of the image; and

optically interrogating interaction with the contact control area from light reflected from the object position relative to the contact control area.

82. A method as defined in claim 66, further comprising:
obtaining information from the surgical equipment concerning the status, control and functionality of the surgical equipment; and
displaying the information describing the control, status and functionality of the surgical equipment in a display remote from the surgical equipment.

83. A method as defined in claim 82, further comprising:
covering the surgeon's face with a face shield during the surgical procedure;
projecting on the face shield the information describing the control, status and functionality of the surgical equipment.

84. A method as defined in claim 82, further comprising:
using patient monitoring equipment during the surgical procedure to determine information describing a condition of the patient;
obtaining the information from the patient monitoring equipment describing the condition of the patient; and
displaying the information describing the condition of the patient on a display remote from the patient monitoring equipment.

85. A method as defined in claim 84, further comprising:
covering the surgeon's face with a face shield during the surgical procedure;
projecting on the face shield the information describing the condition of the patient.

86. A method as defined in claim 66, further comprising:
associating an identification tag with at least one of either the surgeon or the patient;
presenting information in the identification tag identifying at least one of the surgeon, the patient or the surgical procedure to be performed on the patient;

reading the information from the identification tag; and
establishing an initial operative setting of the surgical equipment
automatically in response to the information read from the identification tag.

87. A method as defined in claim 86, further comprising:
optically reading the information from the identification tag.

88. A method as defined in claim 86, further comprising:
presenting information with the identification tag describing the initial
operative setting of the surgical equipment; and

5 establishing the initial operative setting of the surgical equipment
automatically in response to reading the information describing the initial operative
setting from the identification tag.

89. A method as defined in claim 86, further comprising:
presenting information with the identification tag which identifies the
surgeon;

5 storing information which describes the surgeon's preferred initial
operative setting of the surgical equipment;
correlating the identification of the surgeon with stored information;
and

establishing the initial operative setting of the surgical equipment
based on correlating the surgeon's identification and the stored information.

90. A method as defined in claim 89, further comprising:
presenting information with the identification tag which also identifies
the surgical procedure to be performed on the patient;

5 storing information which describes the surgeon's preferred initial
operative settings of the surgical equipment for each of a plurality of particular
surgical procedures;

correlating the identified surgical procedure with the stored
information; and

10 establishing the initial operative setting of the surgical equipment
based on correlating the surgical procedure and the stored information.

91. A method as defined in claim 66, further comprising:

associating an identification tag with the surgeon;
presenting information in the identification tag identifying the surgeon;
reading the information from the identification tag;
5 supplying override information from a source other than the
identification tag; and
permitting operation of the surgical equipment only in response to the
information which identifies the surgeon read from the identification tag or in
response to the override information supplied.

92. A method as defined in claim 91, further comprising:
supplying a password as the override information.

93. A method as defined in claim 66, further comprising:
attaching an identification tag attached to the hand of the surgeon;
presenting information in the identification tag identifying the surgeon;
reading the information from the identification tag;
5 interacting the hand of the surgeon with the image; and
permitting control of the surgical equipment only in response to the
interaction of the hand of the surgeon upon which the tag is attached with the
image.

94. A method as defined in claim 66, further comprising:
projecting the image of the control device on a surface;
including a contact control area within the image which represents a
control function of the surgical equipment;
5 creating a portion of the image separate from the contract control
area;
obtaining information from the surgical equipment concerning the
status, control and functionality of the surgical equipment; and
displaying the information describing the control, status and
10 functionality of the surgical equipment in the portion of the image separate from the
contact control area.

95. A method as defined in claim 66 for use with patient monitoring equipment attached to the patient during the surgical procedure by which to determine information describing a condition of the patient, further comprising:

projecting the image of the control device on a surface;

5 including a contact control area within the image which represents a control function of the surgical equipment;

creating a portion of the image separate from the contract control area; and

obtaining information from the patient monitoring equipment

10 describing the condition of the patient; and

displaying the information describing the condition of the patient in the portion of the image separate from the contact control area.

96. A method as defined in claim 66 for use with patient monitoring equipment attached to the patient during the surgical procedure by which to determine information describing a condition of the patient, further comprising:

projecting the image of the control device on a surface;

5 including a contact control area within the image which represents a control function of the surgical equipment;

creating first and second portions of the image separate from the contract control area;

obtaining information from the surgical equipment concerning the

10 status, control and functionality of the surgical equipment;

displaying the information describing the control, status and functionality of the surgical equipment in the first portion of the image; and

displaying the information describing the condition of the patient in the second portion of the image.

97. A method as defined in claim 96, further comprising:

optically interrogating the part of the surgeon with the contact control area within the image to control the surgical equipment.

98. A method as defined in claim 66, further comprising:

uttering voice commands; and

controlling one of either the surgical equipment or the image in response to the voice commands.

99. A method of controlling surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

5 attaching an identification tag to the hand of the surgeon;
 presenting information in the identification tag identifying the surgeon;
 presenting an image of a control device for the surgical equipment;
 interrogating interaction of the hand of the surgeon with the image;
 reading information from the tag attached to the hand of the surgeon
while the hand of the surgeon interacts with the image;

10 controlling the surgical equipment only in response to the interaction
with the image of the hand of the surgeon to which is attached the tag from which
information was read which identifies the surgeon.

100. A method of using surgical equipment in an operating room while a surgeon performs a surgical procedure on a patient, comprising:

5 obtaining information from the surgical equipment concerning the
status, control and functionality of the surgical equipment; and
 creating a display image at a location within the operating room
removed from the surgical equipment which describes the control, status and
functionality of the surgical equipment.

101. A method as defined in claim 100, further comprising:

 covering the surgeon's face with a face shield during the surgical
procedure; and

 projecting the display image on the face shield.

102. A method as defined in claim 100, further comprising:

 using patient monitoring equipment during the surgical to determine
information describing a condition of the patient;

5 obtaining the information from the patient monitoring equipment
describing the condition of the patient; and

 displaying the information describing the condition of the patient on
the face shield.

103. A method as defined in claim 100, further comprising:
associating an identification tag with at least one of either the surgeon or the patient;
presenting information with the identification tag identifying at least
5 one of the surgeon, the patient or the surgical procedure to be performed on the patient;
reading the information from the identification tag; and
establishing an initial operative setting of the surgical equipment automatically in response to the information read from the identification tag.
104. A method as defined in claim 103, further comprising:
optically reading the information from the identification tag.
105. A method as defined in claim 103, further comprising:
presenting information with the identification tag describing the initial operative setting of the surgical equipment; and
establishing the initial operative setting of the surgical equipment
5 automatically in response to reading information describing the initial operative setting from the identification tag.
106. A method as defined in claim 103, further comprising:
presenting information with the identification tag which identifies the surgeon;
storing information which describes the surgeon's preferred initial
5 operative setting of the surgical equipment;
correlating the surgeon's identification with the stored information;
and
establishing the initial operative setting of the surgical equipment based on correlating the surgeon's identification and the stored information.
107. A method as defined in claim 106, further comprising:
presenting information with the identification tag which also identifies the surgical procedure to be performed on the patient;

- storing information which describes the surgeon's preferred initial
5 operative settings of the surgical equipment for each of a plurality of particular
surgical procedures;
correlating the identified surgical procedure with the stored
information; and
establishing the initial operative setting of the surgical equipment
10 based on the correlation between the surgical procedure and the stored
information.
108. A method as defined in claim 100, further comprising:
uttering voice commands; and
controlling one of either the surgical equipment or the display image
in response to the voice commands.
109. A method of using patient monitoring equipment during a surgical
procedure to recognize information describing a condition of the patient,
comprising:
obtaining information from the patient monitoring equipment
5 describing the condition of the patient; and
creating a display image at a location within the operating room
removed from the patient monitoring equipment which describes the condition of
the patient.
110. A method as defined in claim 109, further comprising:
covering the surgeon's face with a face shield during the surgical
procedure; and
projecting the display image on the face shield.
111. A method as defined in claim 109, further comprising:
uttering voice commands; and
controlling one of either the patient monitoring equipment or the
display image in response to the voice commands.